

## What is Ritangle?

Ritangle is a maths competition for teams of A level Mathematics or International Baccalaureate students attending the same school/college.

It is free to enter. Questions will be released over a period of approximately 4 weeks to the Ritangle website ([integralmaths.org/ritangle](http://integralmaths.org/ritangle)) and to the Integral Twitter feed ([twitter.com/Integral Maths](https://twitter.com/Integral_Maths)).

Only once all the questions have been released can a final overall answer be found.

Use of computers to solve problems is encouraged.

The first team with a correct final answer that satisfies the judges will be declared the winner.

The aim is for students to have fun and to be engaged.

## How do you say 'Ritangle'?

Ritangle is pronounced like 'right angle' or 'wry tangle'.

## How will Ritangle work?

1. There are 5 preliminary questions, A, B, C, D and E. These will be released as follows:

A	02/10/2017
B	09/10/2017
C	16/10/2017
D	23/10/2017
E	06/11/2017

The answers to these questions combine to give a string of characters. Teams can submit an answer to this preliminary round via the Ritangle website. Those doing so are required to register their team which involves nominating a teacher who can verify the team's participation in the competition (see Ritangle Rule 1 later in this document). A correct submission returns a clue for the main competition (see 2. below) by email. It's not necessary to complete the preliminary round to win the main competition, but teams need to be registered to submit answer to the main competition.

2. There are 21 questions in the main competition. These will be released at 09:00 GMT on the following dates via the Integral Twitter feed and to the Ritangle website:

1	09/11/2017
2	10/11/2017
3	13/11/2017
4	14/11/2017
5	15/11/2017
6	16/11/2017
7	17/11/2017
8	20/11/2017
9	21/11/2017
10	22/11/2017
11	23/11/2017
12	24/11/2017
13	27/11/2017
14	28/11/2017
15	29/11/2017
16	30/11/2017
17	01/12/2017
18	04/12/2017
19	05/12/2017
20	06/12/2017
21	07/12/2017

The answers to these questions combine to give the overall answer, which is a 25 character string.

3. It is only possible to work out the overall answer to the puzzle using information in the answer to question 21.
4. Technology could be useful for some questions; suitable guidance about where to find general help with this will be available on the Ritangle website.
5. We may provide hints for some of the questions. Any hints will be made available via Twitter and the Ritangle website.
6. Solutions to the overall answer for the main competition should also be submitted via the Ritangle website.
7. Competitors or teachers can email [ritangle@integralmaths.org](mailto:ritangle@integralmaths.org) about their participation in Ritangle. This can be used for any queries about the competition. It can also be used by teachers to let us know that their

school/college is participating in the competition, in which case teachers should confirm whether they are happy for us to publicise the details. We may, for example, want to, with a teacher's permission, tweet about it on @Integral\_Maths and/or @MEIMaths Twitter feeds or post it on the @MEIMaths Facebook page.

## Ritangle Rules

**Entrants will need to tick a box on the Ritangle website indicating they agree to these rules in order to submit their entry.**

1. There are no restrictions on team size. Teams should consist of students of AS/A level Mathematics or the International Baccalaureate. Any student can only be in one team. All the students in a team must attend the same school/college. Only one entry is permitted per team.

One student from the team must register the team and submit answers to the preliminary round and main competition; the team should agree who this will be to ensure there is only one entry per team. This student is referred to below as the Team Captain. Every student, including the Team Captain, can only be in one team. Registration is via the Ritangle webpage and a team must be registered in order to submit answers to the preliminary round and to the main completion. Registration will be open until 7 December 2017.

The Team Captain must inform a Nominating Teacher at their school that their team is competing, and provide that teacher with the names of all the students in their team. When registering, the name of the team captain, email address of the Team Captain, name of school/college, name of Nominating Teacher, email address of Nominating Teacher must be included. The Nominating Teacher will need to be available on this email address between 7<sup>th</sup> and 14<sup>th</sup> December 2017. A teacher can be the Nominating Teacher for more than one team.

2. Teams should keep evidence of their work on the questions. The judges may request to see this. It is suggested that each team nominates a member as Team Archivist to keep the team's working for the questions as they are attempted.
3. An entry to the competition requires the submission of a 25 character string on the Ritangle website together with the information listed in Rule 1 above. Entries will only be accepted after the final question, number 21,

has been posted at 0900 on Thursday 7 December 2017.

4. Any news relating to the competition, such as the discovery of an error in one of the questions, or a change in the rules, will be announced on the Ritangle website.
5. The submission of answers to the competition questions will be automatically acknowledged to the email address of the Team Captain and the Nominating Teacher.
6. Team members and teachers must not publicise their answers to the competition questions. Other people are working on the puzzle, and their work should be respected.
7. Any help with the questions is permitted, including finding information about the questions on the web and using technology. The only exception to this is that teachers should not help students directly (but help with relevant theory is fine). Team members must understand any help received, and have the working to demonstrate this (see Rule 2).
8. When the first correct overall answer is received, the judges will contact the Nominating Teacher to verify details of the team and their participation. If the answer is satisfactory to the judges (see Rule 2) then that team will be the winner. If not the same will be repeated for the next correct answer received, and this will be repeated until there is a winner.
9. If there are no satisfactory completely correct answers, the prize will be awarded to the team with the closest correct answer at the discretion of the judges
10. The decision of the judges is final. No discussion will be entered into regarding the decision over who is the winner.
11. Teams cannot enter more than once.
12. The winning team and the answers will be announced on the Ritangle website at 09:00 GMT on the website on Wednesday 13 December 2017.
13. The schools of teams that submitted the correct answer, prior to a correct answer being made available somewhere on the web, will be listed on the Ritangle webpage.

14. Anyone leaking the answers inappropriately and anyone making use of such a leak will be barred from receiving any prize.
15. By entering there is agreement, should your team win, to participate in publicity about the competition. This includes sending MEI a suitable photo of the winning team with permission that it can be used by MEI on websites, social media and printed materials.
16. The prize will be a maths hamper, including an Integral subscription for the school/college, and a trophy, and this will be awarded to the school of the winning team. Due to postage costs we reserve the right to substitute a prize of equivalent value but of less weight/bulk should the winning team be based outside mainland UK.